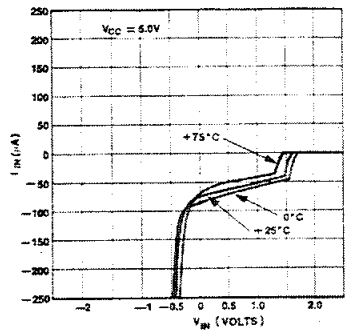
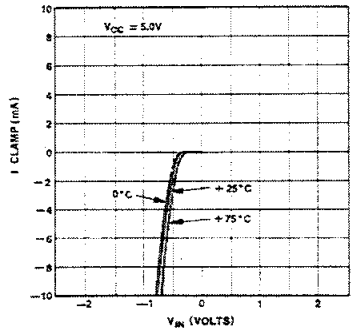
Typical D. C. Characteristics

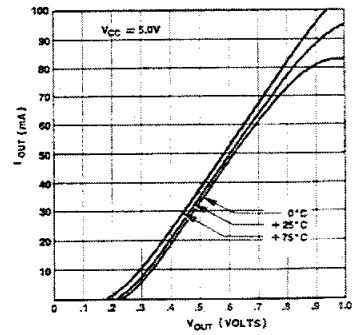
INPUT CURRENT VS. INPUT VOLTAGE



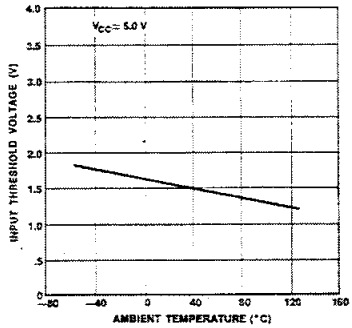
INPUT CLAMP CURRENT VS. INPUT VOLTAGE



OUTPUT CURRENT VS. OUTPUT "LOW" VOLTAGE

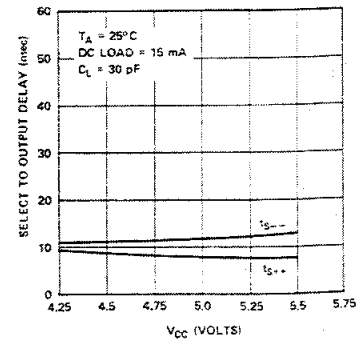


INPUT THRESHOLD VS. TEMPERATURE

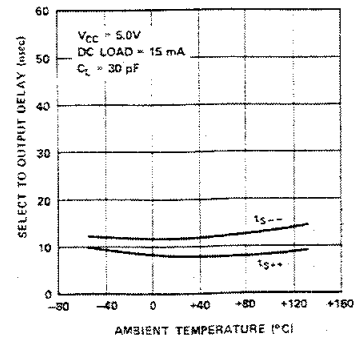


Typical A. C. Characteristics

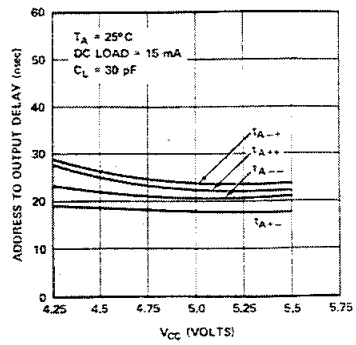
SELECT TO OUTPUT DELAY VS. SUPPLY VOLTAGE



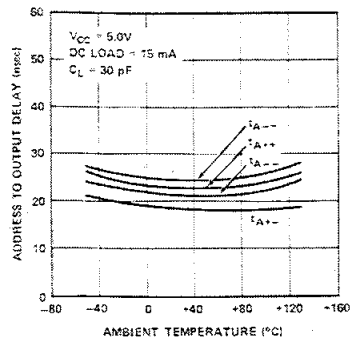
SELECT TO OUTPUT DELAY VS. TEMPERATURE



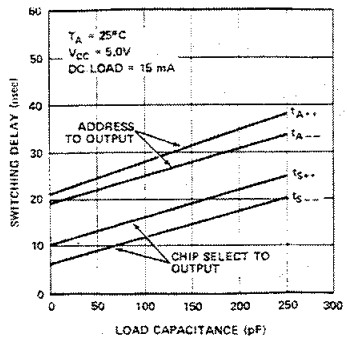
ADDRESS TO OUTPUT DELAY VS. SUPPLY VOLTAGE



ADDRESS TO OUTPUT DELAY VS. TEMPERATURE



SWITCHING DELAY VS. LOAD CAPACITANCE



Switching Characteristics

A. C. Characteristics V_{CC} = +5V ±5%, T_A = 0°C to +75° C

SYMBOL	PARAMETER	LIMIT TYP.(1)	LIMIT MAX.	UNIT	CONDITIONS
t_{A++}, t_{A--} t_{A+-}, t_{A-+}	Address to Output Delay	25	45	ns	Both C.S. lines must be at ground potential to activate the ROM.
t_{S++}, t_{S--}	Chip Select to Output Delay	13	20	ns	

NOTE 1: Typical values are at 25°C and at nominal voltage.

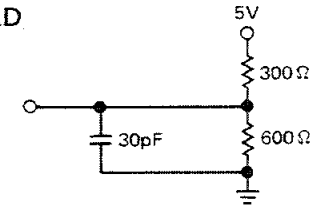
Capacitance (2) T_A = 25° C

SYMBOL	PARAMETER	LIMIT PLASTIC TYP.	LIMIT PLASTIC MAX.	LIMIT CERAMIC TYP.	LIMIT CERAMIC MAX.	UNIT	TEST CONDITIONS
C_{INA}	Address Input Capacitance	5	8	6	10	pF	V_{CC} = 5V V_{INA} = 2.5V
C_{INS}	Chip Select Input Capacitance	5	8	5	10	pF	V_{CC} = 5V V_{INS} = 2.5V
C_{OUT}	Output Capacitance	7	10	8	12	pF	V_{CC} = 5V V_{OUT} = 2.5V

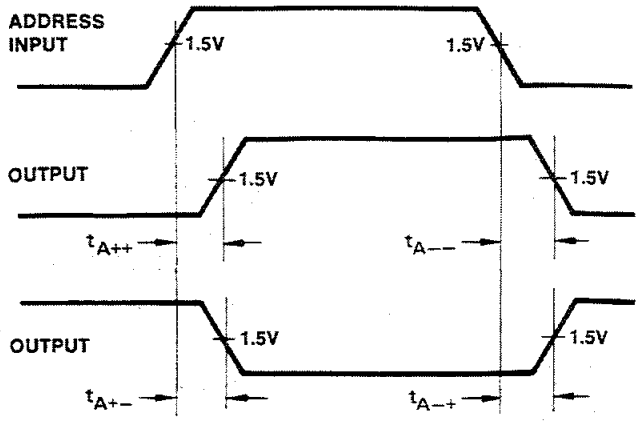
NOTE 2: This parameter is only periodically sampled and is not 100% tested.

Conditions of Test:
Input pulse amplitudes - 2.5V
Input pulse rise and fall times of
5 nanoseconds between 1 volt and 2 volts
Speed measurements are made at 1.5 volt levels
Output loading is 15 mA and 30 pF
Frequency of test - 2.5 MHz

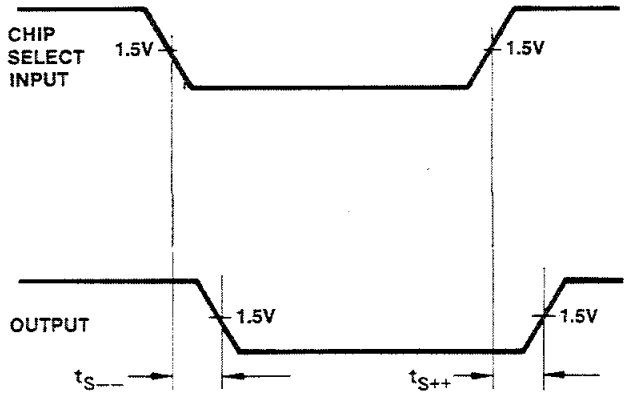
15 mA TEST LOAD



ADDRESS TO OUTPUT DELAY



CHIP SELECT TO OUTPUT DELAY



Absolute Maximum Ratings*

Temperature Under Bias	−65°to +125°C
Storage Temperature	−65°to +160°C
All Input, Output or Supply Voltages	−0.5V to 7 Volts
All Input Voltages	−1.0 to 5.5V
Output Currents	100 mA

*COMMENT

Stresses above those listed under "Absolute Maximum Rating" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or at any other condition above those indicated in the operational sections of this specification is not implied.

D. C. Characteristics: All Limits Apply for V_{CC}= +5.0V ±5%, T_A= 0°C to +75°C

SYMBOL	PARAMETER	LIMITS MIN.	LIMITS TYP.(1)	LIMITS MAX.	UNIT	TEST CONDITIONS
I_{FA}	ADDRESS INPUT LOAD CURRENT			−0.25	mA	V_{CC}= 5.25V, V_A = 0.45V
I_{FS}	CHIP SELECT INPUT LOAD CURRENT			−0.25	mA	V_{CC}= 5.25V, V_S = 0.45V
I_{RA}	ADDRESS INPUT LEAKAGE CURRENT			40	μA	V_{CC}= 5.25V, V_A = 5.25V
I_{RS}	CHIP SELECT INPUT LEAKAGE CURRENT			40	μA	V_{CC} = 5.25V, V_S = 5.25V
V_{CA}	ADDRESS INPUT CLAMP VOLTAGE			−1.0	V	V_{CC}= 4.75V, I_A = −5.0mA
V_{CS}	CHIP SELECT INPUT CLAMP VOLTAGE			−1.0	V	V_{CC}= 4.75V, I_S = −5.0mA
V_{OL}	OUTPUT LOW VOLTAGE			0.45	V	V_{CC}= 4.75V, I_{OL} = 15mA
I_{CEX}	OUTPUT LEAKAGE CURRENT			100	μA	V_{CC}= 5.25V, V_{CE} = 5.25V
I_{CC}	POWER SUPPLY CURRENT		90	125	mA	V_{CC}= 5.25V, $V_{A0} \rightarrow V_{A7}$ = 0V V_{S0} = V_{S1} = 0V
V_{IL}	INPUT "LOW" VOLTAGE			0.85	V	V_{CC} = 5.0V
V_{IH}	INPUT "HIGH" VOLTAGE	2.0			V	V_{CC} = 5.0V

Note 1: Typical values are at 25°C and at nominal voltage.

HIGH SPEED FULLY DECODED 1024 BIT READ ONLY MEMORY

- **Fast Access Time--45 nsec Maximum over Temperature and Supply Voltage Variation.**
- **Low Power Dissipation--0.5 mW/bit typical.**
- **DTL and TTL Compatible--Input Loading is .25 mA max.--Outputs sink 15 mA.**
- **OR-Tie Capability--Open Collector Outputs**
- **Simple Memory Expansion--2 Chip Select Input Leads.**
- **Fully Decoded--on Chip Address Decode and Buffer.**
- **Minimum Line Reflection--Low Voltage Diode Input Clamp.**
- **Standard Packaging--16 Pin Dual In-Line Lead Configuration.**

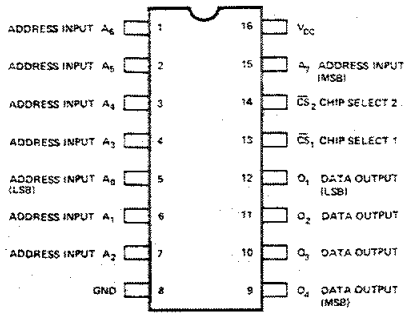
The 3301A is a fully decoded 1024 bit read only memory organized as 256 words by 4 bits. It is a higher speed version of the 3301 and is a direct pin for pin replacement of the 3301. Its performance is specified over the complete ambient temperature range of 0°C to 75°C and a V_{CC} supply voltage range of 5V ± 5%. The 3301A is programmed at the final step of processing which allows fast turnaround.

The OR tie capability and the 2 chip select inputs of the 3301A allow easy memory expansion into larger word and bit lengths.

The 3301A is mask programmed to customized patterns. It is also available in standard "off the shelf" configurations. Ideal applications are in microprogramming and table look up.

The 3301A is manufactured using Schottky barrier diode clamped transistors which allows higher switching speeds than those devices made with conventional gold diffusion process.

PIN CONFIGURATION



PIN NAMES

A_0–A_7	ADDRESS INPUTS
$\overline{CS}_1$–$\overline{CS}_2$	CHIP SELECT INPUTS
$\overline{O}_1$–$\overline{O}_4$	DATA OUTPUTS

LOGIC SYMBOL